

22.6.38

211841(N)

(12) **UK Patent Application** (19) **GB** (11) **2 214 841** (13) **A**
(43) Date of A publication 13.09.1989

(21) Application No 8803906.0

(22) Date of filing 19.02.1988

(71) Applicant
Boart International Limited

(Incorporated in South Africa)

6th Floor, Unitas, 42 Marshall Street, Johannesburg,
Transvaal, South Africa

(72) Inventors
Terence Hill
Cornelius Willem Labuschagne
Gavin Ian Adamson

(74) Agent and/or Address for Service
Marks & Clerk
57-60 Lincoln's Inn Fields, London, WC2A 3LS,
United Kingdom

(51) INT CL'
B04C 5/08 5/085

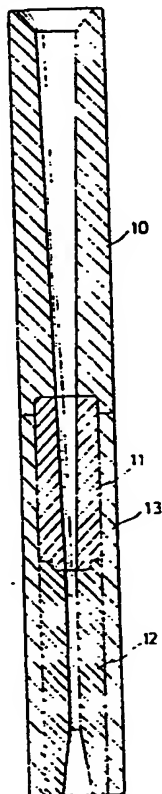
(52) UK CL (Edition J)
B2P P10C2
U1S S1269 S1270

(56) Documents cited
None

(58) Field of search
UK CL (Edition J) B2P
INT CL' B04C

(54) Sectional hydrocyclone body

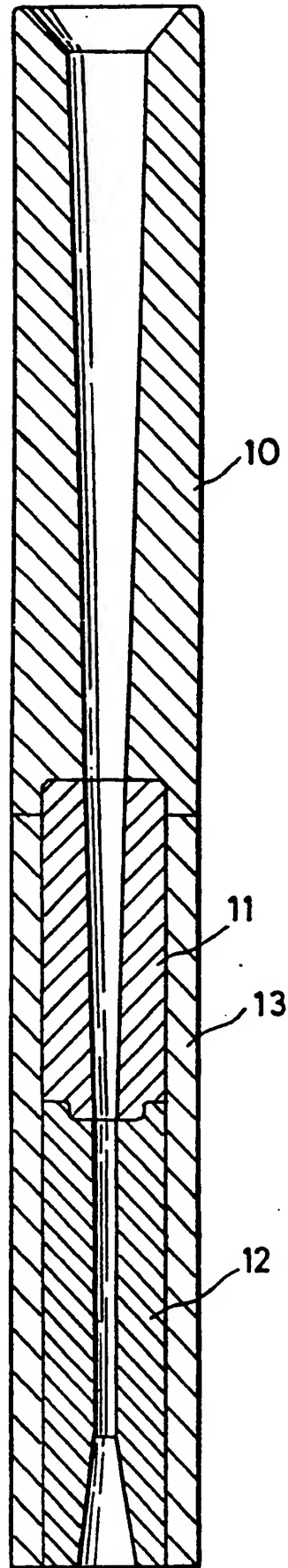
(57) A hydrocyclone for dewatering oil mixtures has a body made up of three sections (10-12) of cobalt cemented tungsten carbide. The sections are formed with spigot and socket connections which are size for size fits into one another. A stainless steel casing (13) surrounds all but the body section (10) nearest the cyclone inlet.



At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

GB 2 214 841

1/1



- 1 -

"A HYDROCYCLONE BODY"

- 2 -

BACKGROUND TO THE INVENTION

This invention relates to the body of a hydrocyclone.

A hydrocyclone has been designed and used for dewatering oil mixtures. The relevant hydrocyclone has a narrow cavity inside a relatively long body and is made of steel. The oil mixture is passed through the hydrocyclone at high speed and pressure. Since the mixture invariably contains grains of sand and other solid particles, the wear on the body of the cyclone due to the cyclonic action is quite high. To line the interior of such a narrow cavity with abrasion resistant material is not a practical proposition.

SUMMARY OF THE INVENTION

According to the invention the body of a vessel of the kind in question is formed of a sintered hard metal and the body is provided in at least three sections formed with a spigot and socket connections which are size for size fits into one another.

The hard metal is preferably cobalt cemented tungsten carbide.

DESCRIPTION OF THE DRAWING

It is a longitudinal section through a body of a hydrocyclone.

DESCRIPTION OF AN EMBODIMENT

The drawing shows a hydrocyclone body made up of three sections marked 10, 11 and 12. The section 10 is formed with a tapering bore leading from a mouth adapted to fit a cyclone ring. The taper of the section 10 continues in the bore of the section 11 which is smaller than the section 10. Finally there is a section 12 formed with a more or less cylindrical bore ending in a flared outlet.

The sections 11 and 12 are of a lesser diameter than the section 10 and to make up for that they are encased in a stainless steel casing 13.

Each section 10, 11 or 12 is made by moulding a suitable powder mixture of tungsten carbide and cobalt in a polyurethane mould around a polished steel mandrel.

The mould is then isostatically compressed to form a green section. With the mandrel still in position the green section is then machined to the required dimensions taking into account eventual shrinkage due to sintering. With the mandrel removed, the section is then sintered in a suitable manner.

The sintered sections may be ground to ensure the necessary size for size fit between the end of the section 11 that fits into a socket on the section 10 and between the spigot at the end of the section 11 and the socket at the top of the section 12.

The sections are assembled as shown in the drawing and fitted to the remaining parts of the known hydrocyclone. The cobalt cemented tungsten carbide resists abrasion to a much greater extent than the known steel body.

It has been found that the greatest degree of abrasion takes place in the bore of the section 11. For that reason it is proposed to make that section of a more abrasion resistant grade of sintered tungsten carbide than the other two sections.

CLAIMS

1.

A hydrocyclone body formed of a sintered hard metal and being provided in at least three sections formed with spigot and socket connections which are size for size fits into one another.

2.

The hydrocyclone body claimed in claim 1 in which the hard metal is cobalt cemented tungsten carbide.

3.

The hydrocyclone claimed in claim 2 in which the body is made up of three sections with the middle one of the three sections made of a more abrasion resistant grade of cobalt cemented tungsten carbide than the other sections.

4.

A hydrocyclone body substantially as herein described with reference to the accompanying drawing.

